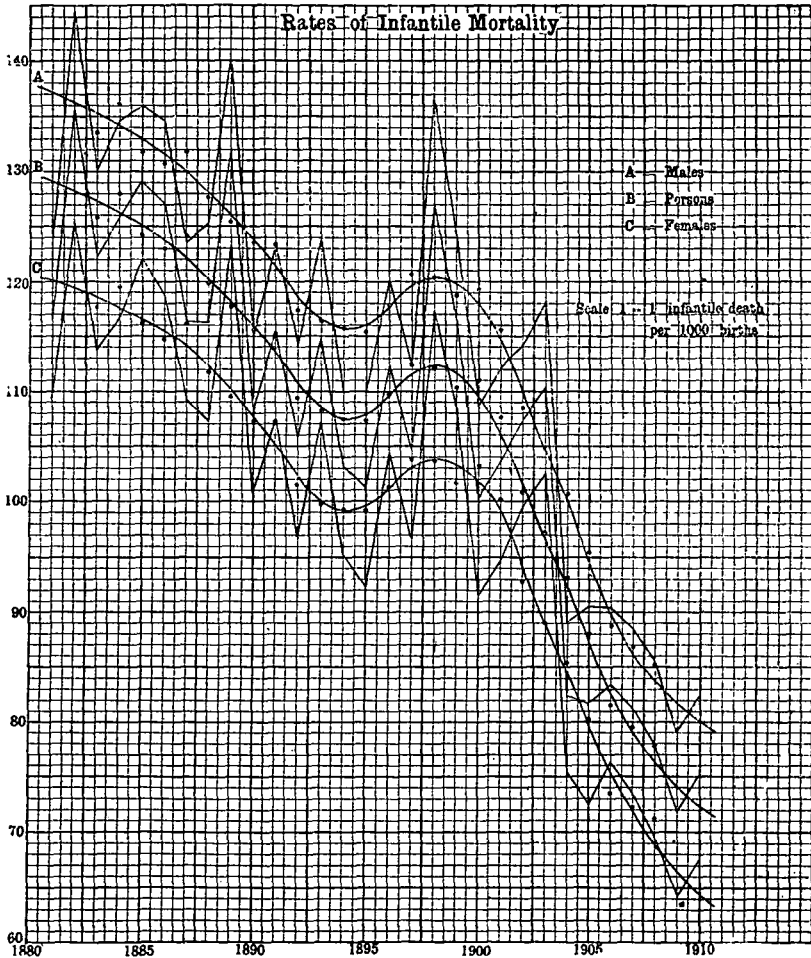


25. **Commonwealth Rates of Infantile Mortality.**—In the diagram hereunder the rates of infantile mortality, as they actually occurred for the years 1881 to 1910, are shewn for males, for females, and for persons by the three series of zig-zag lines in the figure (see curves A, C, and B respectively). These hardly shew what may be called the general trend of this rate, but in order to discover it quinquennial means for successive quinquennia, differing only one year, were calculated. These means are shewn by black dots, then freehand curves were drawn following what may be called the mean position of these dots. These freehand curves, then, represent the general drift of the rates of

COMMONWEALTH OF AUSTRALIA.—RATES OF INFANTILE MORTALITY, 1881 to 1910.



EXPLANATION OF GRAPHS.—The base of each small square represents an interval of half a year, while the vertical height represents an increment in infantile death rate of one per 1000 births, an infantile death rate of sixty per 1000 births being taken as base line for the diagram. The figures on the left hand margin of the diagram represent rates of infantile mortality per 1000 births, while those on the lower margin denote calendar years. The black dots represent a yearly succession of quinquennial means, from which the general trend of the rate of infantile mortality has been ascertained; the upper curve (A) shewing the trend for males, the lower (C) for females, and the middle curve (B) for persons (both sexes combined).

infantile mortality during the period above referred to, unaffected by specially favourable or specially unfavourable years. They prove to be substantially identical in form for males and females, but shew that the death rate for males is about 15 per 1000 greater than that for females throughout. In considering the significance of this result we may, therefore, confine our attention solely to the infantile rate for persons, that is, for both sexes combined.

It will thus be seen that the general improvement in the conditions of infantile life continued from 1881 down to 1894-5, when, however, there was a slight retrogression till 1896, from which date onward there was again continued and marked improvement, that is to say, a rapid falling-off in the rate of infantile mortality. The great significance of this decrease is seen in the fact that the general trend of infantile mortality was about 129 in 1880, and only about 72 in 1910 per 1000 births.

The large differences between the results for individual years shewn by the zigzag lines, and the general trend shewn by curved lines, enable one to discern what year or series of years were specially favourable or specially unfavourable. Thus, it will be seen that the infantile mortality was high in the years 1882, 1889, 1898, and 1903.

It is somewhat remarkable that with the great decrease in infantile mortality there seems to be increasing difficulty in saving male infants as compared with females, and this can be expressed very accurately by a formula giving the number of males per 1000 females. Thus, the number of male infants dying under twelve months of age per 1000 female infants so dying is found to increase as the square of the elapsed time, and may be expressed by the formula: $M = 1136 + 0.09 (T - 1880)^2$, in which T denotes the date-year.

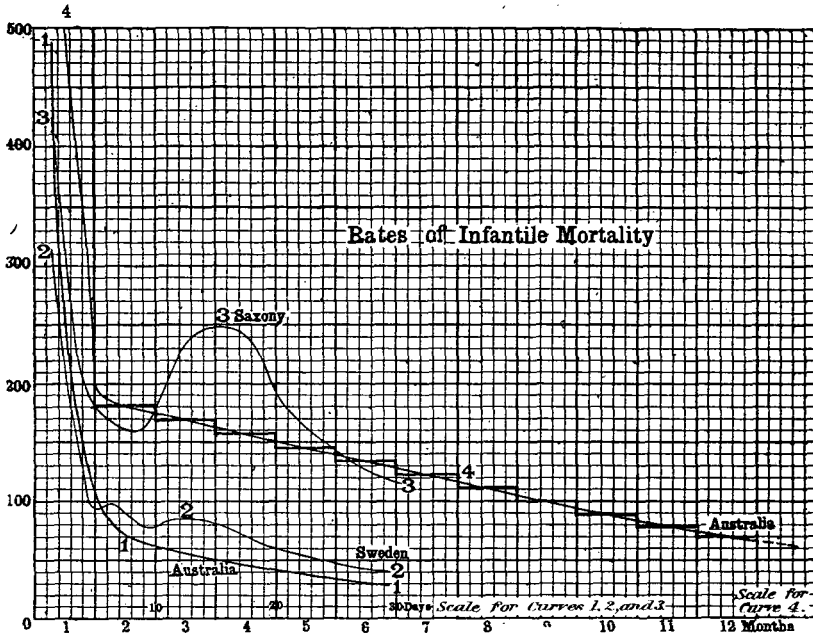
It is evident from the above results that the care of infantile life is comparatively in a very satisfactory position in the Commonwealth.

26. Progressive Diminution of Deaths of Infants during First Twelve Months of Life.—During the first few days of life the rate of infantile mortality is very high indeed, but falls off at the end of one month after birth, and then, relatively, is fairly steady. In the first few days of life the mode of decrease of the death rate presents certain somewhat remarkable features, which can be fairly well made out for the Commonwealth.* The results, shewing in 100,000 births the number who die in successive days for the first thirty days of life, is given for Australia by curve 1, for Sweden by curve 2, and Saxony by curve 3. For child-life, Australia furnishes more favourable results than Saxony for each day in the whole period of thirty days; but Sweden, however, shews more favourable results for the first five days, after which the results are distinctly more favourable in Australia than in Sweden. At the end of thirty days the mortality is, in 100,000 births, somewhat under twenty-eight in Australia per diem, somewhat over forty-one for Sweden, and about 134 in Saxony. In Australia the infantile mortality falls off very rapidly for about seven or eight days, and then slowly for the balance of the period. In Saxony there is a sharp recrudescence of mortality, the maximum occurring at fifteen or sixteen days after birth, and the minimum being at eight days after birth. There is also a slight recrudescence in Sweden, occurring at about twelve or thirteen days after birth; but there is no sign of this in the Australian results. In Saxony, the falling-off is again very sharp after the recrudescence attains its maximum.

* Unfortunately, the registration records give clear indications that the number of days of life are only approximately stated, and a certain amount of redistribution has preliminarily to be undertaken.

Curve 4, in the diagram, shows how rapidly the rate of infantile mortality diminishes for about the first thirty-three days of life, and how slowly, relatively, the rate diminishes afterwards. Hence, any great change in the preservation of infant life means supreme care for the first month.

RATES OF INFANT MORTALITY.—AUSTRALIA, SWEDEN, AND SAXONY.



EXPLANATION OF GRAPHS.—For curves 1, 2, and 3, the base of each small square represents one day, while the height represents ten infantile deaths per day from 100,000 births. For these curves the left hand marginal marking represents the number of infantile deaths in successive days from 100,000 births.

For curve 4, the base of each large square (comprising twenty-five small squares) represents one month, while the height of each of the component small squares represents ten infantile deaths per day from 1,000,000 births. For this curve the left-hand marginal marking represents number of infantile deaths per day from 1,000,000 births.

The following table exhibits the phenomena of infantile mortality for quinquennial periods:—

INFANTILE MORTALITY IN AUSTRALIA, 1881 to 1910.

Period.	Masculinity of Births.	Average Mortality per 10,000 Births.			Mean Masculinity for Period.	Average Values derived from Curves of General Trend.		
		Males.	Females.	Persons.		Males.	Females.	Persons.
1881-85 ...	1,050	1,338	1,177	1,259	1,136	1,352	1,181	1,278
1886-90 ...	1,049	1,277	1,119	1,200	1,142	1,279	1,119	1,201
1891-95 ...	1,053	1,164	998	1,081	1,167	1,177	1,013	1,097
1896-1900 ...	1,048	1,205	1,037	1,123	1,162	1,191	1,027	1,110
1901-05 ...	1,049	1,049	890	971	1,183	1,050	894	969
1906-1910 ...	1,055	852	704	780	1,211	844	695	770